

ADDITIONS AND CORRECTIONS TO GEMMULA
AND XENUROTURRIS

*[looseleaf subscribers should place the
next 12 pages in their proper places by
following the pagination at the bottom
of the pages.]*

Plate 175 (opposite page)

Corrections made on May 15, 1967 (see stars).

- Figs. 1, 6 *Gemmula (Unedogemmula) unedo* (Kiener). Japan (see text p. 22-761).
- 2, 3 *Lophiotoma (Lophioturris) indica* (Röding). Cuyo Id., Philippines (p. 22-931).
- 4, 5 *Lophiotoma (Lophioturris) leucotropis* (Adams and Reeve) (p. 22-932).
- 7, 8 *Gemmula (Unedogemmula) deshayesii* (Doumet). Hongkong (7), Japan (8) (p. 22-762).
- 9 *Lophiotoma (Lophioturris) indica* (Röding). Philippines (p. 22-931).
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- 21, 22 *Xenuroturris castanella* Powell. Hawaiian Islands (p. 22-964). (all 2/3 natural size)

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Gemmula interpolata Powell, new species

(Pl. 311, figs. 1-3)

Range — Known only from the Hawaiian Islands; 10 to 355 fathoms.

Remarks — This one- to two-inch *Gemmula* appears to be allied to *G. gilchristi* (Sowerby) of the Indian Ocean and Japan [p. 22-701]. This Hawaiian species is also broadly fusiform, but has a more regular outline due to the subsutural fold being more prominent than the peripheral carina. The colours consist of sparse but bright brown maculations.

Description — Shell moderately broadly fusiform, 25 to 52 mm. (about 1 to 2 inches) in height, with a tall narrow spire with an angle of 34 to 36 degrees, and a long, almost straight, unnotched anterior canal. Spire height a little less than that of the aperture plus the canal. Protoconch narrowly conical, of $3\frac{1}{2}$ dark-brown whorls, smooth at first but strongly and closely axially costate over the last $1\frac{1}{2}$ whorls. Post-nuclear whorls 8. Spire-whorls sculptured firstly with a prominent, narrowly-crested, smooth, subsutural fold, followed by a straight, steeply descending shoulder slope, which bears three narrow, crisp, smooth spiral threads; then appears the low-set peripheral carina, which is composed of two linear-spaced spiral cords, which are rendered cog-like by vertically fused nodes. Below the carina there is one smooth cord just emergent at the lower suture. On the body-whorl, below the peripheral carina, there are 8 or 9 distant, smooth, prominent cords, a single thread in each interspace, and 12 to 14 closely-spaced threads on the anterior end. Peripheral nodes 26 to 28 per whorl. Sinus deep, U-shaped, its apex occupying the whole width of the peripheral keel. Colour ivory-white, sparsely maculated in dark reddish brown under a thin pale-buff periostracum. The maculations are large and squarish, and occurring in a peripheral series regularly alternating with the nodes. Other spots are sparsely disposed, both on the subsutural fold and on the primary spirals. Inside the outer lip there are distinct spiral lirations. Average-sized specimens are about 25 mm. in height but occasional ones from deep water reach a height of over 50 mm. In such specimens the maculations are paler and there is a tendency for the peripheral keel to become less prominent over the later whorls.

Measurements (mm.) —

height	width	
52.4	16.1	paratype
26.5	9.2	holotype; off Laysan Id.

Types — The holotype, from Laysan Island (USNM 190417) and other paratypes are in the United States National Museum, Washington.

Records — HAWAII, near Laysan Id., 59-70 fms., bottom temperature 70° F. (Albatross Sta. 3940; USNM 190417) (holotype); Near Laysan Id., 130-148 fms., bottom temperature 63° F. (Albatross Sta. 3937; USNM 335269); Oahu, off Waikiki, 100-190 fms., Kechi Lagoon, 20-30 fms.; off Ala Aesava, 10-40 fms. (C. M. Burgess); off N.E. coast of Maui Id., 143-178 fms., bottom temperature 60.8° F. (Albatross Sta. 4079; USNM 335271); Pulo Channel, Maui, 128 fms., bottom temperature 62.5° F. (Albatross Sta. 3857; USNM 206003); Kaiwi Channel, 350-355 fms., bottom temperature 41.6° F. (Albatross Sta. 4107; USNM 338272); off S. coast of Molokai Id., 169-182 fms., bottom temperature 55° F. (Albatross Sta. 3835; USNM 335275); near Lanai Id., 233-240 fms., bottom temperature 48.5° F. (Albatross Sta. 3982; USNM 335270).

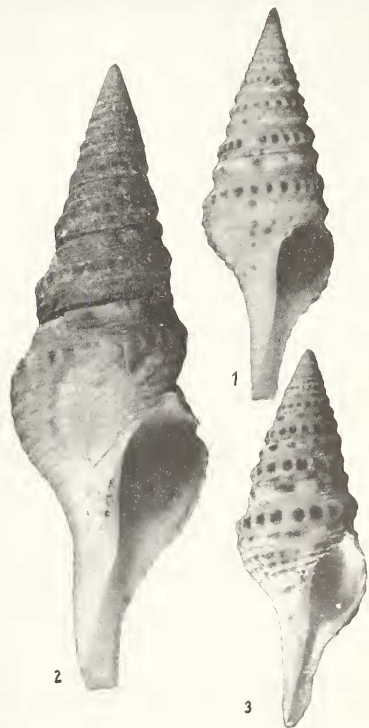


Plate 311. *Gemmula interpolata* Powell, new species. Fig. 1, holotype, USNM 190417, 59-70 fms., off Laysan Island, Hawaii; 26.5 mm. Fig. 2, paratype, 143-178 fms., off Maui Island, Hawaii, C. M. Burgess; 52.4 mm. Fig. 3, paratype, 20-30 fms., Kechi Lagoon, Oahu Island, Hawaii; C. M. Burgess; 25.4 mm.

***Gemmula pseudomonilifera* Powell, new species**

(Pl. 312)

Range — Known only from the Hawaiian Islands; 20 to 67 fathoms.

Remarks — This attractive, $\frac{3}{4}$ -inch turrid resembles *monilifera* (Pease, 1860) from Hawaii and Fiji [p. 22-701], but has a buff colored shell with light-brown, peripheral nodes in contrast to *monilifera* which is always broadly zoned in brown and with a white anterior end. *G. pseudomonilifera* also has a more gradually contracted base, more widely spaced basal spirals, and a shorter anterior canal. This new species also shows close affinities to *hombroni* (Hedley, 1922) from the southwest Pacific [p. 22-734]. A specimen from 253 fathoms off Maui Island exhibits a tubular labial outgrowth of a basal spiral, as is sometimes found in specimens of *Pinguigemmula*.

Description — Shell small (17 mm.), narrowly fusiform, with a tall spire and a moderately long, very slightly flexed anterior canal. Spire-height slightly greater than half the length of the entire shell. Protoconch conical and with about 4 whorls, the first two smooth, the remainder closely and strongly axially costate. Post-nuclear whorls 6. Spire-whorls sculptured firstly with a prominent sharply carinated subsutural fold, followed by a deep shoulder concavity bearing two fine smooth spiral threads, then by the low-set peripheral keel, which is composed of two gemmate cords. Over the last two whorls, between the peripheral keel and the lower suture, a strong plain spiral cord becomes emergent. On the base and neck the primary spirals are few, strong, plain and wide-spaced, with occasional fine interstitial threads, after which there are closely spaced, but indistinct, spiral lirae on the anterior end. Sinus moderately deep; rather broadly U-shaped, its apex on the peripheral keel. Colour buff, with the protoconch and peripheral nodes tinged with light-brown and most of the body-whorl diffused with the same colour.

Measurements (mm.) —

height	width	
17.7	6.3	holotype
16.0	5.9	paratype

Records — HAWAII: Oahu, Keelii Lagoon, 20-30 fms. (type locality); off Waikiki, 100-190 fms. (P. Burgess); off N.E. coast of Maui Id., 253-267 fms., bottom temperature 46° F. (Albatross Sta. 4084; USNM 338283); S. coast of Molokai Id., 64-60 fms., bottom temperature 71.5° F. (Albatross Sta. 3846; USNM 338282); near Lanai Id., 233-240 fms., bottom temperature 48.5° F. (Albatross Sta. 3982; USNM 338284).



Plate 312. *Gemmula pseudomonilifera* Powell, new species. Holotype, Auckland Museum. 20-30 fms., Keelii Lagoon, Oahu Island, Hawaii; 17.7 mm.

Gemmula congener subspecies
unilineata Powell, new subspecies
 (Pl. 313)

Range — Known only from the Hawaiian Islands; 100 to 312 fathoms.

Remarks — This subspecies differs from typical *congener* as well as from the subspecies *cosmoi* and *diomedea*, in that the spiral lirations of the shoulder-slope are knotted or beaded, not plain. In the strong development of the subsutural fold and peripheral carina, *unilineata* is nearest to the typical subspecies, but the shoulder sulcus is wider, bearing three spirals. In typical *congener* the shoulder sulcus is deep and narrow, with only one or two smooth spirals. In *cosmoi* and *diomedea* there is a very wide shoulder slope that bears 4 to 6 smooth spiral threads. The only other subspecies that has a brown-banded subsutural fold is *cosmoi*, but it is unicarinate and smooth, not tricarinate and beaded.

Description — Shell rather broadly fusiform, with a tall spire, with an angle of 34 or 35 degrees, and a moderately long, straight and unnotched anterior canal. Spire height a little more than that of the aperture plus the canal. Protoconch narrowly conical of about three whorls, the first two smooth and the last closely axially costate. Post-nuclear whorls 8. Spire-whorls sculptured firstly with a massive subsutural fold, which is composed of three gemmate spirals, the middle one strongest, followed by a moderately wide shoulder slope, which is sculptured with three knotted to gemmate sub-cords; then the low-set strong peripheral carina, which is composed of two closely-spaced cords, studded with about 32 closely-spaced series of nodes which are vertically fused; from the carina to the lower suture there is a single strong smooth cord. From the carina to the anterior end there are about sixteen cords, which are strong above, then gradually diminishing, the uppermost undulating, the median ones more or less gemmate, the lower ones smooth, with a thread in most interspaces. Sinus moderately deep, with a rather broadly V-shaped entrance, its U-shaped apex occupying the full width of the peripheral carina. Interior of outer lip finely liriate. Ground colour ivory-white under a pale straw-coloured periostracum; subsutural fold dark reddish brown, and pale reddish brown between the peripheral nodes.

Measurements (mm.) —

height	width	holotype
31.0	10.7	
28.0	10.2	off Diamond Head, 240-260 fms.

Types — The holotype is in the B. P. Bishop Museum, Honolulu. The type locality is 200 fathoms, mud bottom, off Waikiki, Oahu Island, Hawaii. Pele Expedition, June 13, 1964, C. Weaver, collector. Paratypes are in the U. S. National Museum from other Albatross stations (see records).

Records — HAWAII: 100-190 fms., off Waikiki; 240-260 fms., off Diamond Head (both Oahu Island; Pat Burgess); 147-198 fms., bottom temperature 49° F. (Albatross Sta. 4045; USNM 338280); near Kauai Id., 309-257 fms., 43.7° F. (Albatross Sta. 4131; USNM 173042); near Kauai Id., 283-309 fms., 46.1° F. (Albatross Sta. 4130; USNM 338273); near Kauai Id., 257-312 fms., 46.8° F. (Albatross Sta. 4132; USNM 338274); south coast of Molokai Id., 238-255 fms., 48° F. (Albatross Sta. 3836; USNM 338278); south coast of Oahu Id., 211 fms., 47.7° F. (Albatross Sta. 3810; USNM 338277). (Most of the Albatross specimens are dead bleached shells, but one from Sta. 4045 exhibits the characteristic brown subsutural band. All temperatures were taken at the bottom.)



Plate 313. *Gemmula congener* new subspecies *unilineata* Powell. Holotype, B. P. Bishop Museum, 200 fms., off Waikiki, Oahu Island, Hawaii; 31.0 mm.

[These occasional blank areas occur between genera and subgenera to permit the insertion of new material and future sections in their proper systematic sequence.]

Gemmula hombroni (Hedley, 1922)

(Pl. 200, fig. 4, pl. 201, fig. 8, pl. 314)

Remarks—I add new locality records and new illustrations of unusual specimens with a double sinus on the outer lip.

Three specimens of this species taken at Batangas Bay, Philippines, and forwarded for inspection by Mr. Donald Dan of Manila, exhibit an unusual feature, in that there is a second, properly formed sinus, situated in the lower part of the outer lip. This sinus is of the same character as the anal sinus but is not quite so deep; it is, however, slightly rim-margined and is certainly not just an accidental cleft due to injury.

This extra sinus does not seem to be quite comparable with the irregular flutings often found in *Gemmula* and the related genera *Pinguigemmula* and *Ptychosyrinx*. In all such cases the flutings have a projecting rounded or spout-like termination, and in most instances they are filled with callus. The solid nature of most of these flutings negates the suggestion made by MacNeil (1969), that they may represent a response to an oxygen-poor environment into which one or more incurrent siphons are developed. Unfortunately there are no animals available from specimens with either the flutings or the extra sinus. Only an examination of these animals associated with these shell abnormalities would elucidate the problem.

New records—PHILIPPINES: Batangas Bay, Luzon Island (Donald Dan, Auck. Mus.). FIJI: dredged in 80 to 90 ft., muddy sand, Momi Bay, Viti Levu Id. (Bill Jennings, 1962, ANSP).



Plate 314. *Gemmula hombroni* Hedley, Batangas Bay, Philippines: showing a second sinus in the outer lip. 24.0 mm.

Gemmula tessellata Powell, new species

(Pl. 315)

Range—Known only from the Hawaiian Islands.

Remarks—This small, attractive species most closely resembles the more slender *Gemmula amabilis* (Weinkauff) from the Red Sea, from which it is distinguished by its stouter outline, tuberculate subsutural fold and its shorter, straighter anterior canal. This species belongs to *Gemmula sensu stricto*.

Description—Shell less than an inch in size, fusiform, with a tall spire which is slightly more than half the length of the entire shell. Protoconch tall, narrowly conical, of $4\frac{1}{2}$ whorls, the tip smooth, the remaining whorls sculptured with closely spaced stout axials, the whole crossed by delicate spiral threads, more prominent on the axials than in the interspaces. Post-nuclear whorls 6. Spire-whorls bicarinate, sculptured with a prominent, narrowly crested and tuberculate subsutural fold, which is separated by a narrow, deep shoulder sulcus from the massive peripheral keel, composed of two almost coalescent cords and bearing prominent, vertically fused, cog-like nodes. Below the low-set peripheral keel there is a single smooth cord emergent



Plate 315. *Gemmula tessellata* Powell, new species. Holotype, Auckland Museum. 100-120 fms., off Waikiki, Oahu Island, Hawaii. 15.8 mm.

at the lower suture of the penultimate whorl, and a second one appears over the last half-whorl. Body-whorl with rather widely spaced, flat-topped cords above, four weaker cords, the upper two with intermediate threads, over the neck, and closely spaced fine threads over the anterior end. Sinus moderately deep, U-shaped, its apex occupying the whole width of the peripheral carina. Interior of outer lip strongly lirate. Colour ivory white with the protoconch tinted light reddish brown, and a regular tessellation in the same colour over the remainder of the shell. The tessellations alternate with the tubercles on the subsutural fold, and are regularly spaced on the primary spirals. Inner-lip callus and interior of the aperture white.

Measurements (mm.) —

height	width	whorls	
15.7	9.5	10.5	holotype

Types — The type locality is 100 to 120 fathoms, in mud and sand, off Waikiki, Oahu Island, Hawaii. Collected by Dr. Pat Burgess. The holotype, and only known specimen, is deposited in the Auckland Museum and Institute, New Zealand.

Gemmula microscelida (Dall, 1895)

(Pl. 316, figs. 1-3)

Range — Hawaiian Islands, deep water from 253 to 528 fathoms.

Remarks — This deep water, rather common species bears some resemblance to *graeffei* (Weinkauff) from the southwest Pacific in its form and sculpture, but the canal is much shorter and is decidedly twisted. Judging from the poor specimens selected as holotype and paratype, the full range of material listed below could not have been available to Dall when he wrote his 1895 paper. A much better specimen from Albatross station 4083 is now figured along with the type specimens.

Description — Shell about an inch in size, rather broadly fusiform, with the spire being more than half the entire length of the shell. Protoconch usually missing, but consists of about 4 narrowly-conical whorls, the last two of which are closely and axially costate. Post-nuclear whorls about 7. Sculpture of spire whorls consisting firstly of a rather prominent, rounded, smooth subsutural cord, then a rather wide, moderately concave shoulder slope, bearing 1-3 weak spiral threads, followed by the low-set prominent peripheral keel, which is composed of two linear-spaced cords, rendered cog-like by numerous vertically fused nodes. These nodes

frequently extend a little beyond the keel, both above and below, where they coalesce with the axial growth lines. The nodes number between 20 and 22 per whorl. Between the periphery and the lower suture there is a single smooth spiral cord. On the body whorl, from the periphery downward, there are about 11 narrow smooth cords, extending to the bottom of the neck, after which there are weak indefinite closely-spaced threads over the anterior end. Surface smooth except for numerous, fine, crisp axial growth lines; surface covered by a pale to moderately dark olivaceous periostracum. Sinus rather broadly V-shaped at its entrance, the apex U-shaped and occupying the full width of the peripheral carina.

Measurements (mm.) —

height	width	
22.0	8.5	holotype
22.2	10.0	paratype
23.5	9.0	paratype

Types — The holotype is in USNM 127122. The type locality is 351 fathoms, sand bottom, off the Hawaiian Islands, Albatross station 3475.

Synonymy —

1895 *Pleurotoma microscelida* Dall, Proc. U. S. Nat. Mus., 17, p. 677 (not figured).

Records — (All off the Hawaiian Islands, all dredged by the *Albatross*, and all lots in the United States National Museum.) All temperatures mentioned were taken at the bottom. Station 4041, 382-253 fms., 41.6° F., west coast of Hawaii Id.; sta. 4131, 309-257 fms., 43.7° F., off Kauai Id.; sta. 4083, 238-253 fms., off N.E. Maui Id.; sta. 3992, 528 fms., 39.6° F., off Lanai Id.; sta. 3883, 277-284 fms., 45.2° F., Pailolo Channel; sta. 3839, 259-266 fms., 46.3° F., off south Molokai Id. Also from Albatross stations 4130, 4133, 4090, 3866, 3865, 3867, and 4027.

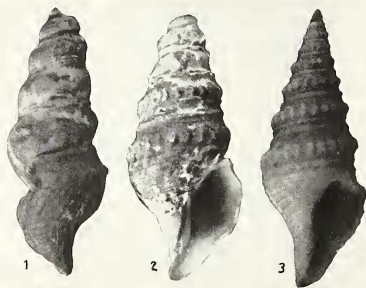


Plate 316. *Gemmula microscelida* (Dall, 1895). Fig. 1, holotype, USNM 127122, 351 fms., off the Hawaiian Islands; 22.0 mm. Fig. 2, paratype, Albatross station 3475, off Hawaiian Islands; 22.3 mm. Fig. 3, 238-253 fms., off N.E. coast of Maui Island, Albatross station 4083, USNM 173038; 23.5 mm.

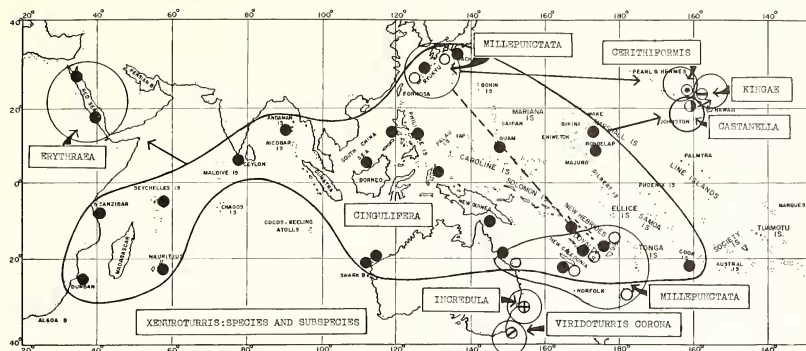


Plate 253. Geographical distribution of *Viridoturris corona* Laceron and members of the genus *Xenroturris*.

Xenroturris cingulifera subsp. erythrura (Weinkauff, 1875)

(Pl. 252, fig. 1)

Range — Red Sea.

Remarks — It is likely that the Red Sea populations may represent a good regional subspecies differing from *cingulifera* typical mainly in the much stronger and fewer spiral cords and a characteristic purple staining in adults of the anterior canal and pillar. Unfortunately, I have seen insufficient material to determine if the above mentioned characters are constant and if *cingulifera* typical is absent from the area.

Description — Adult shell 23 to 25 mm. (about 1 inch) in height. Whorls about 8, plus protoconch (missing in material examined). Spire twice the height of the aperture plus canal, angle 18° to 20° . Spire whorls with three heavy spiral keels and a fourth emergent over the latter part of the body whorl. Spiral cords on the base, 4 or 5 and strong, interspaces each with 3 or 4 crisp, spiral threads and 4 or 5 rounded cords on the fasciole. In two of the three specimens I have examined all the keels including the sinus one are narrowly arched but in the third specimen the sinus rib is composed, as in *cingulifera*, of two closely spaced cords. Colour pattern of small brown speckles on the primary cords and large regularly spaced, rectangular patches of dark-brown on the sinus rib, or paired dashes in one example. Pillar and anterior canal stained bright violet but this staining absent in the example with the bifid sinus rib.

Despite these variations, the Red Sea form would appear on the scant material available to represent a regional subspecies on the basis of stronger and fewer spirals and a tendency to violet staining of the anterior end.

Measurements (mm.) —

height	width	
25.0	9.0	Port Sudan
23.5	8.5	Type, Massana
23.5	8.0	Port Sudan
19.0	7.5	Port Sudan

Synonymy —

1875 *Pleurotoma erythrura* Weinkauff, *Conch. Cab.*, p. 22, pl. 4, fig. 10.

1884 *Pleurotoma erythrura* Weinkauff, Tryon, *Manual of Conch.* 6, p. 166, pl. 3, fig. 24.

Records — RED SEA: Massana and Dahlack (Weinkauff) (type locality); Port Sudan (MCZ).

Fossil Records — Somali coast (Pleistocene) (Abrard, 1942, p. 86, recorded and figured as *cingulifera*).

Xenroturris millepunctata (Sowerby, 1908)

(Color pl. 175, figs. 13, 17, 18; pl. 252)

Range — New Caledonia, Fiji, Kermadec Islands, Ryukyu Island, Japan and Australia. ★

Description — Adult shell 25 to 50 mm. (1 to 2 inches) in height. Whorls 9 or 10, plus protoconch of 4 to $4\frac{1}{2}$ axially costate whorls, as in *cingulifera*. Spire about $1\frac{1}{4}$ times the height of the aperture plus canal, angle 22° to 24° . The differentiating characters from those of *cingulifera* are the colour pattern of rather sparse brown speckles, minus maculations on the sinus area, the more prominent sinus ribs and a distinct angulation of the base.

Measurements (mm.)—

height	width	
50.0	15.0	Kii, Japan
34.7	11.0	New Caledonia
25.0	9.0	New Caledonia

Synonymy—

1908 *Pleurotoma millepunctata* Sowerby, Proc. Malac. Soc. London 5, p. 198, text fig.

1914 *Pleurotoma cingulifera zonifera* Bouge and Dautzenberg, Journ. de Conchyl. 61, p. 128 (not figured).

Records—JAPAN: Kii (A. W. B. Powell coll.); Ikenodan, Izu (D. Thaanum); RYUKYU ISLANDS: Cima, Kumejima Id., Okinawa (D. Thaanum). LOYALTY ISLANDS: (D. Thaanum). NEW CALEDONIA: Ile Monac (type locality); Voh, on sea-grass tidal flat, Miss V. Orr, ANSP). KERMADEC ISLANDS: Raoul Id. (W. R. B. Oliver, Australian Mus.). FIJI ISLANDS: Namotu Id., 13-15 fms. (W. Jennings). AUSTRALIA: 30 fms., off Southport, Queensland (T. Carrard, coll. 1965).

★ *Xenuroturrus cerithiformis* Powell, 1964

(Color pl. 175, figs. 14, 15; pl. 252)

Range—Hawaiian Islands.

Remarks—This subspecies has long been known from distributed material bearing Dall's manuscript name, *cerithiformis*, which was quoted along with figures and a description by Tinker (1952).

Tinker did not intend to describe this and several other of Dall's manuscript species in his book. His action does not measure up to the requirements of the International Rules and Powell, 1964, not Tinker, 1952, must be the author.

This Hawaiian species is close to *millepunctata* but differs consistently in having more rounded whorls, neither sharply angled on the base nor deeply excavated at the neck.

Description—Adult shell 33 to 53 mm. (1½ to 2 inches) in height, whorls 10 or 11, plus a multispiral narrowly conic protoconch of 4 to 4½ whorls, brown, densely sculptured with slightly curved strong rounded axials crossed at right angles by weak spiral lirae. Spire tall, almost twice the height of the aperture plus canal, 24° to 27°, outlines lightly convex except for bulging subsutural fold and sinus rib. Sculpture of spire whorls consisting of a broadly-convex subsutural fold bearing 3 to 5 weak spiral threads, separated by a narrow deeply channeled concavity from the sinus rib, situated at about middle whorl height and composed of two moderately strong, rounded, spiral cords with a concavity between. Below the sinus area there are 2 to 4 crisp cords of varying strength. About 10 primary cords and occasional interstitial threads on the base from below the sinus area plus 4 cords

on the weak fasciole. Sinus deep and narrow. Colour white, rather evenly speckled with reddish brown dots and dashes; larger maculations not present.

Measurements (mm.)—

height	width	
53.0	18.0	Pearl and Hermes Reefs, Hawaii
45.0	14.5	Kalakiki, Hawaii
38.5	11.4	Honolulu, 6-8 fms. (type)
33.4	11.0	Honolulu, 6-8 fms.
32.0	10.2	Honolulu, 6-8 fms.

Types—I hereby select the specimen in USNM 338601 as the holotype. It is figured in our plate 175, fig. 14. The type locality, here designated, is 8-10 fms., entrance to Honolulu Harbor, Oahu Id., Hawaii.

Synonymy—

1869 *Pleurotoma lirata* Pease, Amer. Jour. Conch., Philadelphia 3, p. 68 (non *Pl. lirata* Reeve, 1845).

1952 *Turris cerithiformis* (Dall, ms.) Tinker, Pacific Sea Shells, Honolulu, p. 46, pl. 47, fig. (upper row).

Records—HAWAIIAN ISLANDS: entrance to Honolulu Harbour, 6-8 fms., Oahu (holotype, USNM) (D. Thaanum coll.). (ANSP); off Fort Armstrong, Honolulu, 15-20 ft. (ANSP); Ka Lae Kiki Koloa, Kauai (ANSP); Pearl and Hermes Reef, Hawaii (ANSP); off Kaanapali, West Maui, 25-75 ft.; Keaukaha Ponds, Hawaii; off Kewalo, Oahu, 20 fms. (D. Thaanum coll.).

★ *Xenuroturrus castanella* Powell, 1964

(Color pl. 175, figs. 21, 22; pl. 252)

Range—Hawaiian Islands.

Remarks—Again this species has long been known from distributed material bearing Dall's manuscript name. (See remarks concerning Tinker's use of Dall's manuscript names, above.)

This is a member of the *cingulifera* series but an endemic Hawaiian one sufficiently distinct in its sculpture and coloration to warrant full specific status.

Description—Adult shell, 35 to 45 mm. (1½ to 1¾ inches) in height. Whorls about 10, plus a multispiral, narrowly conic protoconch of 4 to 4½ whorls, brown, densely sculptured with slightly curved, strong, rounded axials crossed at right angles by weak spiral lirae. Spire tall, 1½ to 1¾ times the height of the aperture plus canal, 22° to 24°, outlines lightly convex. Sculpture of spire whorls of closely spaced, rather evenly developed, moderately strong but narrow, crisp, spiral cords. Three cords on a slightly raised subsutural fold, 3 forming the sinus rib, situated above middle of whorl height and 2 primary cords with 3 threads in each inter-

Xenuroturris gemmuloides Powell, *new species*

(Pl. 317)

Range — Known only from the Hawaiian Islands from 16 to 267 fathoms.

Remarks — Although this species has the general characters of the genus *Xenuroturris*, it has the gemmate or beaded peripheral keel of a *Gemmula*. It has the high spire and sinus of a *Xenuroturris*. This species differs from *X. cerithiformis* Powell, 1964 [p. 22-964a] in having the peripheral keel minutely gemmate.

Description — Shell about 19-25 mm. (about one inch) in length, with a very tall spire and a truncated, decidedly flexed anterior canal, but with a gemmulate carina. Spire height almost twice that of the aperture plus the canal. Protoconch narrowly conical of about $3\frac{1}{2}$ whorls, the first two smooth, the remainder strongly and closely axially costate. Post-nuclear whorls 10. Spire-whorls sculptured, firstly with a broad but low subsutural fold, bearing three closely-spaced crisp cords, then a narrow shallow shoulder sulcus bearing two more cords, followed by a broad but rather weakly projecting sinus-keel, which is composed of two rather weak gemmate cords and an intermediate thread, the gemmules vertically fused, and closely spaced in cog-like fashion. From the peripheral carina to the lower suture there are two smooth spiral cords and several intermediate threads. From the peripheral keel to the neck there is a regular alternation of relatively strong smooth cords and weak threads; 10-12 closely-spaced smooth threads are on the anterior end. The anterior canal is strongly twisted and has an oblique shallowly-notched termination. The sinus is very deep, narrow and parallel-sided, its squarish apex occupying the full width of the peripheral keel. Colour of protoconch creamy white; remainder of shell dull-white, irregularly maculated and streaked with reddish brown. Odd squarish spots are disposed upon the subsutural fold and upon the peripheral carina, and there is a broad ill-defined zone on the base.

Measurements (mm.) —

height	width	
24.7	7.7	holotype
19.2	6.5	paratype

Types — The holotype is in the B. P. Bishop Museum, Honolulu. The type locality is 16.5 fathoms, off Waianae, Oahu Island, Hawaii. Clifton Weaver, collector.

Records — HAWAII: off Waianae, 16½ fms., Oahu (C. Weaver) (type); off Honolulu, 60 fms. ("Pele II"; Mrs. M. King); off Waikiki, 100-120 fms., mud and sand (C. M. Burgess); off N.E. coast of Maui Island, 253-267 fms., bottom temperature 46° F. (Albatross Sta. 4084; USNM 338284).



Plate 317. *Xenuroturris gemmuloides* Powell, *new species*. Holotype, B. P. Bishop Museum. 16.5 fms., off Oahu Island, Hawaii; 24.8 mm.

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